

**REMARKS/ARGUMENTS**

Claims 11-19 stand in the present application, claim 11 having been amended. Reconsideration and favorable action is respectfully requested in view of the above amendments and the following remarks.

In the Office Action the Examiner has rejected claims 11, 12, 15 and 19 under 35 U.S.C. § 102(e) as being anticipated by Robertson, has rejected claims 13 and 14 under 35 U.S.C. § 103(a) as being unpatentable over Robertson in view of Kirsch, and has rejected claims 16-18 under 35 U.S.C. § 103(a) as being unpatentable over Robertson in view of Paik et al. In view of the above-described claim amendments, the Examiner's §§ 102 and 103 rejections of the claims is believed to have been overcome.

The claimed invention is directed to an apparatus for accessing information stored in a specific type of database, namely in a semi-structured database. As described on page 2 lines 1 to 5 of the published PCT application, "A semi-structured database is a database in which some of the data within the database is stored in specific fields which denote the type of data whereas the remainder of the data will simply be stored under a general field, such as a free text field."

Semi structured databases have different characteristics compared with standard structured databases. As described on page 2 lines 6 to 27 of the published PCT application, the versatility of the free text fields means that the data entered may vary in content and style. While this reduces restrictions on the data that can be entered, thereby making the database easier to create, it does mean that the different types of data stored cannot be determined by identifying the field in which the data is stored. The

described example of a Yellow Pages directory has a name entry stored in a name field, and a free text entry such as a description of the company products, or services, an address entry and a telephone entry stored in the same free text field. The structure of the semi-structured database storing Yellow Pages items is shown in Figure 2A and 2B and described in more detail on page 12 line 19 to page 13 line 5 of the published PCT application.

The description on page 12 line 6 to page 19 line 4 of the published PCT application relates to the generation of an index for the semi-structured database whereas apparatus for accessing the semi-structured database (the claimed subject matter) is to be found on page 19 line 5 to page 20 line 18 and page 21 line 10 to page 32 line 2 of the published PCT application with reference to Figure 4.

As described on page 23 line 25 of the PCT application, users can input request information in the form of a standard sentence which may not have a standard structure which is compatible with the semi-structured database. The parser is described on page 23 line 23 to page 25 line 24 and is responsible for deconstructing the sentence into its individual components. The parser in the embodiment is a weak parser that takes as input a standard user sentence and outputs a parse tree. The description illustrates the parse tree for the phrase "I want a plumber for my boiler, who takes visa, in Ipswich" on page 25 lines 10 to 14.

The parse tree is then passed to a Slot Filler 108 which determines the sentence structure and assigns the component words from the user request into a slot filler request data structure for use in searching an index. The operation of the slot filler is

described on page 19 line 5 to page 20 line 18 and page 25 line 26 to page 29 line 16.

In the embodiment, component words are mapped to slots in a slot-filler request having slots corresponding to the following categories: Transaction, Goods, Location, Payment, Opening and Street. The description at page 19 lines 9 to 17 states that at least some of the indices in the index store are advantageously determined to correspond to respective slots in a slot-and-filler request. This means that the search term entered in a given slot need only be compared to the respective set of indices in associated with that slot, thereby reducing the amount of searching required, whilst allowing detailed searches to be performed.

The Query Constructor is described on page 29 line 19 to page 30 line 24. The query constructor receives the generated slot-and-filler request and uses it to access indices stored in the index store 2 containing the keywords entered in the associated field of the slot filler request. The query constructor outputs a list of any relevant items and their respective locations within the database store 1.

As explained above, the claimed invention is concerned with performing search requests on a semi-structured database by processing a user's natural language phrase to obtain components which are allocated to slots in a slot and filler request which then become the search terms used to access the database via an index store.

In order to emphasize these features of Applicants' invention, independent claim 11 has been amended as noted above.

Robertson is concerned with increasing the efficiency of a search engine by minimizing peripheral input/output operations and in-memory table accesses. To achieve this effect, Robertson stores "word information in a manner that the information itself allows for document level determinations to be made without the need to access a separate document level table."

In particular, Robertson generates a full text index by assigning a unique number to each word in each document. The numbers are assigned such that each document is associated with a unique range or group of numbers to enable easy determination of whether or not word numbers are associated with the same document. For example, document 25 contains 869 words and therefore since the word group size is 256, four groups of word numbers covering a range of 1024 consecutive unique numbers (1 to 1024) are allocated to document 25 (column 8 lines 63 to 66). Document 30 is the next document and contains 506 words, and has two groups of word numbers (1025 to 1530) and document 35 has seven groups of word numbers allocated. A cross referencing table is also utilized to index the groups of word numbers and record the relationship between groups of word numbers and the documents to which they relate.

Robertson does not relate to accessing a semi-structured database. The passage on column 2 line 40 to column 3 line 24 relates to generating the index describing the database and not the database itself. The Examiner has relied on the phrases "full text" and "groups of words" as anticipation, yet it is clear that the actual phrases are "full text index" and "groups of word numbers" both of which are features of the index.

Similarly, the passage on column 2 line 40 to column 3 line 24 cannot be relied upon for anticipation of the input means, parser and slot filler features. This passage does not concern the processing carried out by Robertson on the search request.

Therefore it is submitted that Robertson is very remote from the present invention and does not anticipate the claimed invention because it fails to disclose more than one feature of the claimed invention. Similarly, Kirsch and Pait fail to rectify the deficiencies of Robertson to arrive at the claims. The passage cited in Kirsch relates to the search query whereas the claim relates to the index, whereas Pait merely describes analysis of the documents in a database to identify concepts and to perform sense disambiguation. It does not describe a slot-and-filler request.

It is therefore submitted that the claims, as amended, patentably define over the cited art taken singly or in any combination.

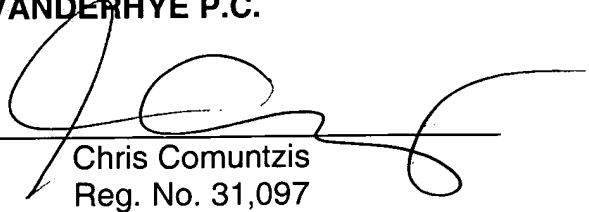
Therefore, in view of the above amendments and remarks, it is respectfully requested that the application be reconsidered and that all of claims 11-19, now standing in the application, be allowed and that the case be passed to issue. If there are any other issues remaining which the Examiner believes could be resolved through either a supplemental response or an Examiner's amendment, the Examiner is respectfully requested to contact the undersigned at the local telephone exchange indicated below.

STEEL et al  
Appl. No. 09/744,393  
January 11, 2008

Respectfully submitted,

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